

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF MICHIGAN**

HORIZON GLOBAL AMERICAS INC.

Plaintiff,

v.

CURT MANUFACTURING, LLC,

Defendant.

Case No. 2:17-cv-11879

Honorable Avern Cohn

Magistrate Judge

Stephanie Dawkins Davis

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**Horizon's Presentation of Paradigm Claims**

Horizon presents paradigm claims according to the Court's August 8, 2018, *Markman* Briefing Guidelines. Claim terms identified by Curt as ambiguous are presented with a letter and presented in bold and underlined. (*See* ECF #39).

**U.S. Patent No. 6,068,352, Claim 1**

1. A brake controller for controlling the brakes of a towed vehicle, said brake controller comprising:
  2. an input circuit for generating a brake level signal representing the braking force to be applied by the towed vehicle's brakes;
  3. a display circuit including a plurality of indicator lights;
  4. a power switching circuit and adapted for coupling to the brakes of the towed vehicle and to the power supply of the towing vehicle, for selectively supplying power from the towing vehicle power supply to the brakes of the towed vehicle in response to a switching control signal supplied to a control input terminal;
  - 5a. **a current sensing circuit** for sensing a level of braking current supplied to the brakes of the towed vehicle through said power switching circuit,
    6. and for generating a current level signal representing the sensed level of braking current; and
  7. a microcontroller coupled to said input circuit, said display circuit, said current circuit, and to said power switching circuit, said microcontroller generating and supplying a switching control signal to said control input terminal of said power switching circuit thereby causing said power switching circuit to deliver a braking current to the brakes of the towed vehicle that is related to the brake level signal supplied to said microcontroller by said input circuit, said microcontroller illuminating one or more of said indicator lights of said display circuit to indicate a relative level of braking of the towed vehicle brakes and
    - 8a. **controlling one or more of said indicator lights to indicate that the towed vehicle brakes are or are not properly connected to said power switching circuit.**

**U.S. Patent No. 6,068,352, Claim 64**

1. A brake controller for controlling the brakes of a towed vehicle, said brake controller comprising:
  2. an input circuit for generating a brake level signal representing the braking force to be applied by the towed vehicle's brakes;
  3. a power switching circuit adapted for coupling to the brakes of the towed vehicle and to the power supply of the towing vehicle, for selectively supplying power from the towing vehicle power supply to the brakes of the towed vehicle in response to a pulse width modulated control signal supplied to a control input terminal whereby the braking current supplied to the towed vehicle brakes corresponds to a duty cycle of the pulse width modulated control signal; and
  4. a microcontroller coupled to said input circuit and to said power switching circuit, said microcontroller generating and supplying the pulse width modulated control signal to said control input terminal of said power switching circuit, 8. said microcontroller varying the duty cycle of the pulse width modulated control signal in response to the brake level signal supplied to said microcontroller by said input circuit to thereby cause said power switching circuit to deliver a braking current to the brakes of the towed vehicle that corresponds to the desired level of braking.

**U.S. Patent No. 8,179,142, Claim 1**

1. A signal converter comprising:
  2. a power supply;
  - 3a. **a microcontroller** connected to said power supply,
  4. said microcontroller configured to receive a plurality of input signals related to lamp lights of a first vehicle from said first vehicle,
  5. and output a plurality of output signals related to one or more vehicle lamp light loads of a second vehicle;
  - 6a. **a current sensing device connected to said microcontroller to monitor current flow at said loads; and**
7. wherein, said microcontroller is capable of reducing the duty cycle of one or more of said output signals in response to said current flow rising above a first predetermined threshold.

**U.S. Patent No. 8,179,142, Claim 31**

1. A signal converter comprising:
  2. a power supply;
  - 3a. **a microcontroller** connected to said power supply,
    4. said microcontroller configured to receive an input from a first vehicle related to a vehicle lamp light,
    5. and transmit at least one output signal related to a vehicle lamp load to one or more loads of a second vehicle;
  - 6a. **wherein said input signal from said first vehicle contains information related to two or more parameters of said first vehicle; and**
  - 7a. **wherein said microcontroller is capable of decoding said input signal and outputting a signal to said second vehicle related to at least one of said two or more parameters of said first vehicle.**

**U.S. Patent No. 9,522,583, Claim 1**

1. A tie down apparatus for securing an item, the tie down apparatus comprising:
  2. a body member rotatable about an axis between first and second rotational positions within a receiving member; and
  - 3a. **a locking member extending through the body member and being axially moveable relative to the body member**
    - 3b. **between first and**
    - 3c. **second axial positions,**
  4. wherein the locking member in the second axial position prevents rotation of the body member from the second rotational position to the first rotational position and
  5. the locking member is prevented from moving from the first axial position to the second axial position until the body member is rotated from the first rotational position to the second rotational position.

**U.S. Patent No. 9,522,583, Claim 4**

1. The tie down apparatus of claim 3,
  2. wherein the body member includes a post extending in a direction opposite the handle, whereby the post engages the receiving member when the body member is in the second rotational position.



**U.S. Patent No. 9,592,863, Claim 1**

1. A fifth wheel hitch comprising:
  2. at least one support frame capable of engagement with a towing vehicle;
  3. a cross-member attached to said at least one support frame;
  4. an isolation system operatively coupled with said cross-member, said isolation system comprising:
    - 5a. **a beam engaged with said cross-member about a first axis,**
    - 5b. **wherein a cross-member isolator dampens longitudinal displacement** of said beam generally along said first axis; and
  6. a skid plate engaged with said beam about a second axis,
    - 6a. wherein a **wing isolator** dampens radial displacement of said skid plate relative to said second axis.

**U.S. Patent No. 9,592,863, Claim 4**

1. The fifth wheel hitch of claim 3 further comprising
  2. a fastener attaching said wing isolator to said wing,
  3. wherein said skid plate rotates about said fastener.

**U.S. Patent No. 9,248,713, Claim 1**

1a. **A safety chain engaging device for a towing vehicle having a gooseneck hitch attached** with a transversely extending frame member of the towing vehicle,

2. the safety chain engaging device comprising:

3. a first bracket configured to be secured with the frame member of the towing vehicle and having at least a portion thereof configured to be disposed axially beneath the frame member upon securement of the first bracket with the frame member;

4. a second bracket attached with the first bracket, the second bracket including a plate member spaced from the first bracket such that at least a portion of the frame member is configured to be positioned between the plate member and the first bracket; and

5. at least one safety chain engaging member secured with the plate member, wherein the at least one safety chain engaging member is spaced from the frame member upon securement of the first bracket with the frame member

**U.S. Patent No. 9,248,713, Claim 4**

1. The safety chain engaging device of claim 2,
2. wherein the U-shaped member is a U-bolt

Respectfully submitted,

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